

CLAIMS

1. An electrical connection material for electrically connecting an electrical connection portion of a first object and an electrical connection portion of a second object, characterized in that the electrical connection material comprises

a first film-like adhesive layer which is a film-like adhesive layer arranged on said first object and is composed of a plurality of conductive particles, a first binder containing the conductive particles, and a first filler and

a second film-like adhesive layer which is arranged on said first film-like adhesive layer and is composed of a second binder whose viscosity is lower than that of said first binder and a second filler.

2. The electrical connection material according to claim 1, characterized in that

said conductive particles have an approximately uniform particle diameter.

3. The electrical connection material according to claim 1, characterized in that

the material of said second film-like adhesive layer composed of said second binder and said second filler is a binder having the same material as that of or a material similar to said first binder of said first film-like adhesive layer containing said conductive particles.

4. The electrical connection material according to claim 1, characterized in that

the viscosity of said second film-like adhesive layer becomes extremely lower than the viscosity of said first film-like adhesive layer in a heating process.

5. The electrical connection material according to claim 1, characterized in that

the thickness of said first film-like adhesive layer containing said conductive particles is set to from approximately the same thickness as the diameter of said conductive particles up to about 4 times the diameter.

6. The electrical connection material according to claim 3, characterized in that

in order that the viscosity of said second film-like adhesive layer composed of said second binder and said second filler is set to a value lower than the viscosity of said first film-like adhesive layer containing said conductive particles, the diameter of said second filler particles is set to a value larger than the diameter of said first filler particles.

7. The electrical connection material according to claim 3, characterized in that

in order that the viscosity of said second film-like adhesive layer composed of said second binder and said second filler is set to a value lower than the viscosity of said first

film-like adhesive layer containing said conductive particles, the content by amount of said second filler is set to a value smaller than the content of said first filler.

8. The electrical connection material according to claim 1, characterized in that

said first filler and said second filler are materials reducing the coefficient of water absorption and the coefficient of linear expansion of a binder.

9. The electrical connection material according to claim 1, characterized in that

the electrical connection portion of said first object is a wiring pattern on a circuit substrate, the electrical connection portion of said second object is a protrusion electrode of an electrical component, and said conductive particles in said first film-like adhesive layer containing said conductive particles electrically connect the wiring pattern on said circuit substrate and the protrusion electrode of said electrical component.

10. The electrical connection material according to claim 1, characterized in that

the elements of said first binder containing said conductive particles and said second binder of said second film-like adhesive layer are the same or approximately similar.

11. An electrical connection material comprising a

first film-like adhesive layer composed of a first binder and a first filler and

a second film-like adhesive layer which is composed of a second binder and a second filler and is arranged on said first film-like adhesive layer, characterized in that said first binder is made of a first high molecular resin material and said second binder is made of a second high molecular resin material whose molecular weight is smaller than that of said first high molecular resin material.

12. An electrical connection method for electrically connecting an electrical connection portion of a first object and an electrical connection portion of a second object, characterized in that the electrical connection method comprises

an adhesive layer arrangement step for arranging a first film-like adhesive layer which is composed of a plurality of conductive particles, a first binder containing said conductive particles, and a first filler on the electrical connection portion of said first object and a second film-like adhesive layer which is composed of a second binder and a second filler on said first film-like adhesive layer and

a connection step for performing heating and pressurization for electrically connecting the electrical connection portion of said first object and the electrical connection portion of said second object by means of said conductive particles of said first film-like adhesive layer.

13. The electrical connection method according to claim

12, characterized in that said connection step comprises

a first pressurization heating step for heating and pressurizing said first film-like adhesive layer and said second film-like adhesive layer in a temperature range of $\pm 20^{\circ}\text{C}$ centering a temperature at which the viscosity of said second film-like adhesive layer becomes the lowest and

a second pressurization heating step for thereafter heating and pressurizing said first film-like adhesive layer and said second film-like adhesive layer at a temperature higher than reaction start temperature of said first film-like adhesive layer and said second film-like adhesive layer.

14. The electrical connection method according to claim 13, characterized in that

even in a temperature range of $\pm 20^{\circ}\text{C}$ centering a temperature at which the viscosity of said second film-like adhesive layer becomes the lowest, the viscosity of said first film-like adhesive layer containing said conductive particles is higher than the viscosity of said second film-like adhesive layer, said second film-like adhesive layer is fluidized, said conductive particles of said first film-like adhesive layer containing said conductive particles is not fluidized, and said conductive particles in said first film-like adhesive layer containing said conductive particles are made to exist between a wiring pattern on a circuit substrate and a protrusion electrode of an electrical component to electrically connect the wiring pattern and the protrusion electrode.

15. The electrical connection method according to claim 13, characterized in that

the temperature at which the viscosity of said second film-like adhesive layer becomes the lowest is 80°C.